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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,311	06/08/2001	Joseph Meehan	US 010019	9417
24737	7590	11/01/2004	EXAMINER	
PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			LIU, SHUWANG	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/877,311

Applicant(s)

MEEHAN ET AL.

Examiner

Shuwang Liu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2001.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 11, 14-16, 19 and 20 is/are allowed.  
6) ☒ Claim(s) 1-10, 12, 13, 17 and 18 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 08 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08/12/02.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119 (e) as requested by the Preliminary Amendment filed on 09/10/01 as follows: the provisional application expired (over one year) to file the US application 09/877,311 (filed 06/08/01) according to the filing date August 27, 1999, as recited in the preliminary amendment, for the provisional Application 60/262, 125.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: CMA1 as described in line 12 on page 6 is not shown in figure 1.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The preliminary amendment filed on 09/10/01 is not entered because the claimed priority data is not matched with the file record for the provision application 60/262,125, which is filed January 16, 2001, instead of August 27, 1999. The Examiner also noted that the filing data of this application is not correct in some filed documentations, for example, IDS and the preliminary amendment.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 5-10, 12, 13, 17 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification and drawings do not describe a sampling circuit (means) as recited in the claims. The specification only describes "slicer circuit" that has the connection as recited in claim.

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6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

"N" recited in claim 1 is indefinite because "N" is not defined in claim.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malkemes et al. (US 2002/0054655, see 60/206,133 filed on May 22, 2000) in view of Endres et al. (US 6,418,164) (whereby "N" is interpreted to be  $\geq 1$ ).

As shown in figures 1 and 2, Malkemes et al. discloses:

(1) regarding claim 1:

an adaptive antenna system, comprising:

N antennae (102);

N forward equalizers (202) operatively coupled to a respective one of the N antennae; and

N processors (210) to generate N respective control signals which adapt coefficients associated with each respective one of the forward equalizer.

Malkemes et al. discloses all of the subject matter as described above except for teach the processor to generate the respective control signals performing a constant modulus algorithm (CMA) for calculating the equalize filter coefficients (0020 and 0021).

Endres et al., in the same field of endeavor, teaches the Constant Modulus Algorithm (CMA) used for calculating the parameters of the equalization filter (column 7, line 22-column 8, line 58).

One skilled in the art would have clearly recognized that in the blind equalization system, the calculating of parameters of equalizer filter is used by the Least Mean Squares (LMS) algorithm, the Recursive Least Squares (RLS) algorithm, or CMA, et al.. It would be desirable to provide a more efficient method, such as CMA, for calculating the parameters of the equalizer filter in order to increase quantization precision and reduce cost (column 1, lines 5-11 and column 3, lines 16-56, Endres et al.). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the CMA as taught by Endres et al. in the processor of Malkemes et al. to generate the respective control signals for calculating the coefficients of the equalizers because the combination achieves to reduce the cost for the hardware of the system and increase the quantization precision, and provide a more efficient method for the updating the coefficients of the equalizer filters.

(2) regarding claim 2:

further comprising:

a decision device (206) receiving a signal based on the collected output of the N forward equalizers; and

a feedback equalizer (208) receiving an output of the decision device and generating a feedback signal biasing the signal received by the decision device, wherein the Nth control signal generated by the Nth processor adapts coefficients associated with the feedback equalizer (0021).

***Allowable Subject Matter***

10. Claims 11, 14-16, 19 and 20 are allowed.

11. The following is an examiner's statement of reasons for allowance: the prior art fails to teach and suggest that a beamforming antenna system employing first and second antennae and a blind dual error antenna diversity (DEAD) algorithm, comprising:

first processing means for generating the first control signal based on a combination of the first and second forward equalized signals and second processing means receiving the second forward equalized signal for generating the second control signal.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (571) 272-3036.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (571) 272-3056.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

**(703) 872-9306 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).



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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

A handwritten signature in black ink, appearing to read 'Shuwang Liu', is positioned above the printed name.

Shuwang Liu  
Primary Examiner  
Art Unit 2634

October 27, 2004